

Application No. 10/650,359
Amendment Dated December 13, 2004
Reply to Office Action dated August 11, 2004

Amendments to the Specification:

Please add the following new paragraph and header after the title, before the first paragraph [0001] of the application:

RELATED APPLICATION:

This application is related to and claims the benefit of priority from Norwegian Patent Application No. 2002 4168, filed on September 2, 2002, the entirety of which is incorporated herein by reference.

FIELD OF THE INVENTION:

Please add the following new paragraph header after the first paragraph [0001] and before the second paragraph [0002] of the application:

BACKGROUND OF THE INVENTION:

Please replace paragraph [0004] with the following amended paragraph:

To this purpose, the heating system comprises a subsea electrical cable clamped to the pipeline surface at more or less regular intervals, in parallel to the pipeline axis. During this installation, the subsea electrical cable is submitted to pulling forces – typically around 20kN – so that it becomes a tensioned cable. Moreover, whereas the pipeline is quite capable of expanding and contracting – in the axial direction – as a result of temperature changes, - this is not so with the clamped subsea electrical cable. Forced into the same elongation during production, typical tension in the subsea electrical cable will be increased from 20kN to 120kN approximately. But [but] such a high tension is unpredictable, and beyond what is acceptable for the cable itself and the clamps. The clamps will therefore break or move relative to the subsea electrical cable and the pipeline, and in the worst case, damaging both.

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Please add the following new paragraph header after paragraph [0004] and before paragraph [0005] of the application:

OBJECT AND SUMMARY OF THE INVENTION

Please replace paragraph [0010] with the following amended paragraph:

- handling said secondary element after said clamping so as to release the attachment of said undulation, thereby converting said additional length into an [a free to be used] excess length that is free to be used.

Please replace paragraph [0020] with the following amended paragraph:

The internal pressure is high during said manufacturing and installation and has a lower internal pressure after [the] handling.

Please add the following new paragraph header after paragraph [0026] and before paragraph [0027] of the application:

BRIEF DESCRIPTION OF THE DRAWINGS:

Please add the following new paragraph header after paragraph [0033] and before paragraph [0034] of the application:

DETAILED DESCRIPTION:

Please replace paragraph [0045] with the following amended paragraph:

In figure 2, a heating system which comprises the electrical cable system 1 is schematically illustrated. An insulated metal tube 1' (i.e. the pipeline) connects a template 20, such as a gas or oil well-head, on the seafloor 30 with a processing unit 40 installed on a

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platform 50. The tube 1' has an outer thermal insulation ensuring that fluid such as crude oil coming from the template has a sufficiently low viscosity until it reaches platform 50. If the oil flow is stopped, formation of hydrate plugs and wax deposits occur which can block the pipeline when oil transportation is to be resumed again.

Please replace paragraph [0048] with the following amended paragraph:

During installation, the electrical cable system 1 is clamped [in] parallel to the pipeline axis and at more or less regular intervals in the heated section 6 by a series of clamps 7 and preferably straps.

Please replace paragraph [0053] with the following amended paragraph:

d_1 is the distance between the two straps 7a and 7b. The attached undulations 100 of the electrical cable 10 within the common sheath 5 created by the helical like configuration, [give] obviously provide electrical cable 10 [the] additional actual length [higher to said] relative to the actual spanned longitudinal distance [d1] d_1 . The section 6 of the pipeline 1' is cold and has its minimal elongation.

Please replace paragraph [0063] with the following amended paragraph:

According to the invention, the electrical cable 10 is able to withstand pulling forces of 20-30kN before and during clamping. After depressurization, the tension from installation is removed. The electrical cable 10 extends instead of physically elongating, without [setting up] transferring too much force to the straps 7a and 7b, estimated around 3kN. Therefore during length fluctuations of the pipeline 1', the straps 7a and 7b will not [support effort] suffer excessive tension and the electrical cable 10 is [safe] not damaged.

Please replace the abstract with the following amended abstract:

~~The present invention relates to an~~ An electrical cable system and a method for manufacturing an electrical cable system (1) ~~has comprising~~ an electrical cable (10) containing a conductor core (2). The method ~~and~~ for installing ~~said the~~ electrical cable system of a longitudinally expandable contractible element (1', 6) ~~characterized in that it comprises the~~

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~~successive steps of:~~ includes disposing a secondary element (3) over ~~the said~~ electrical cable so as to give the ~~said~~ electrical cable substantially attached undulations (100) ~~thereby~~ forming an additional length[.]. The electrical cable system is installed ~~installing~~ by clamping at least at two points ~~said electrical cable system~~ to the ~~said~~ longitudinally expandable-contractible elements[.]. The secondary element is handled ~~handling said secondary element~~ after the ~~said~~ clamping so as to release the attachment of ~~said~~ the undulations thereby converting ~~said~~ the additional length into a free to be used excess length.